

Not Just for the Holidays

In the 1930's, Americans consumed about 23 pounds of sweetpotatoes per person each year. Last year, per capita consumption hit an all-time low of 3.9 pounds.

Loaded with beta carotene and only a trace of fat, sweetpotatoes—even candied—have fewer calories than a spinach soufflé. They have been an important food source since ancient times. But, in the United States, sweetpotatoes have been declining in popularity for many years.

Why would a food that is good tasting and so obviously good for you fall out of favor?

“Most people unfortunately think of sweetpotatoes as a seasonal food, to be enjoyed around the fall and winter holidays,” says Gary Lucier, an economist with USDA’s Economic Research Service. “The trend also seems to be that sweetpotatoes are more popular with older people in the South. We need to get all age groups in all geographic areas interested in this nutritious vegetable.”

In the 1930’s, Americans consumed about 23 pounds of sweetpotatoes per person each year. Lucier says that last year’s per capita consumption hit an all-time low of 3.9 pounds.

William M. Walter, an ARS chemist, hopes to reverse the trend with the help of North Carolina State University scientists Van-Den Truong and Karina Sylvia. From oversized, misshapen, low-grade sweetpotatoes, they have made a high-value frozen product that rivals—and can exceed—the quality of top-grade fresh sweetpotatoes.

“Now, the biggest market for sweetpotatoes is fresh consumption,” Walter says. “One reason for this is that processors have not been able to control textural properties that depend on the variety and how the sweetpotatoes are handled after harvest.”

And most people prefer a baked sweetpotato, he says, which takes about an hour in a conventional oven.

At the ARS Food Science Research Unit in Raleigh, North Carolina, Walter and Truong ground up low-grade sweetpotatoes. To this they added two types of cellulose texturizing agents and a little sugar and froze the mixture in sausage casings. They later removed the casings and baked the sweetpotato rolls, unthawed, in a conventional oven at 400°F for 15 minutes.

The result: definite “down-home” taste and quality, in a fraction of the time.

A 30-member taste panel rated the new product equal to baked fresh sweetpotatoes in flavor and overall acceptability. They found no significant differences in color or texture.

Furthermore, “one of the additives that we used to maintain textural quality could actually increase the health value of the sweetpotatoes,” Walter says. “Studies have shown that MHPC (methylhydroxypropylcellulose)—a compound that’s widely used in the food industry in texture modifiers, thickeners, binders, and stabilizers—may lower blood cholesterol levels.”

Although sweetpotato french fries have been served in restaurants for a few years, they haven’t caught on, perhaps because they tend to be a little soggy rather than crisp.

Walter and Sylvia have increased firmness of french fried sweetpotatoes 100 percent with an alkaline-neutralization treatment.

They withdrew gases from sliced sweetpotato strips and replaced them with a dilute alkaline solution, in a process called vacuum-infusion. The strips were then blanched and again vacuum-infused with a weakly acidic solution to return the tissue to its normal acidity. They rinsed, froze, and then deep-fried the strips.

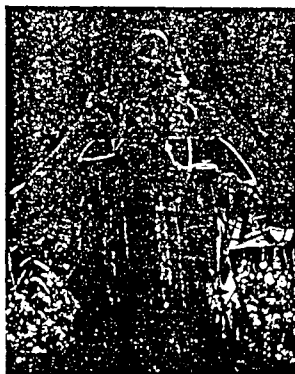
Taste panelists liked the taste and crunchy texture. There was no mention of off-flavor, but it was noted that there was very little of the characteristic sweet taste.

“This is a plus,” Walter says. “It actually makes the sweetpotato more versatile. We can add various flavorings, depending on consumer preference.”

He says these new procedures, which could open up a new market for growers, will work on all grades of sweetpotatoes. In 1993, North Carolina, Louisiana, and California produced most of the 1.2 billion-pound U.S. sweetpotato crop.—By Doris Stanley, ARS.

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Agricultural Research



Cover: Understanding moth behavior is essential to applying effective control methods against mobile pests. Here, technician Jesus Esquivel uses night vision goggles and infrared lighting to watch corn earworm moths that have emerged from cornfields (behind him) to feed on nectar of night-blooming plants, such as gaura. Photo by Jack Dykinga. (K5694-19)



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